CONFIDENCE – A Mobility Safeguarding Assistance Service with Community Functionality for People with Dementia

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Abstract

This work deals with a mobility safeguarding assistance service for people suffering from mild to moderate dementia called CONFIDENCE. For this people assisted living at home should be made possible in order to prolong their active participation in social life and in order to alleviate the strain on public care services. Also families who are burdened with providing care either directly or via cost-intensive public or private care organisations should be supported by the service. CONFIDENCE offers the combination of service innovation with state of the art mobile communications technology and location based computing, within the legal frameworks of the participating organisations: the idea is to offer real-time assistance via mobile phone and geo-tracking technology when people suffering from dementia suddenly lose orientation and feel insecure. End user trials will be conducted in three countries which have differing requirements due to the organisational culture of their social service systems.

Introduction

With increasing life expectancy dementia is a rising problem. In 2006, it was estimated that 7.3 million Europeans between 30 and 95+ were suffering from dementia. And the number of persons affected is expected to double by 2040[1]. The most common types are Alzheimer's disease (60 %) and vascular dementia (16 %). Dementia affects the elderlies' capability for autonomous ability indoors as well as outdoors. At the first stage of dementia, people suffer from moderate but progressively increasing memory loss, difficulties with time-space relationships, and disorientation even in places they are familiar with. They often feel unsure in their daily routine. As a result of the increasing sense of disorientation people get fearful and consequently they gradually lose their independence and mobility. Common routes and tasks such as shopping, housekeeping or simply taking a walk become a daily challenge. These limitations not only pose problems for those concerned they can also become very challenging for their families. Here the CONFIDENCE approach for a mobility safeguarding assistance service with community functionality for people with dementia comes into play. CONFIDENCE aims at providing mobility and safeguarding assistance services for people suffering from mild to moderate forms of dementia. It intends to develop a novel community-enabled mobility safeguarding assistance service that combines "assistive technologies" with "personal help". To this purpose a community consisting of family members, staff of home care agencies and/or trusted volunteers will be built up. They will use advanced ICT to work together in supporting patients with mild to moderate dementia. The mobile CONFIDENCE service is a "virtual companion" providing different levels of assistance that can be adapted, depending on the situational needs of the patient and the degree of orientation loss. It will offer a **virtual voice service** (requesting assistance from care persons, who can locate the person in need on an electronic map and give them instructions on where to go), a **virtual**

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[1] Ferri, C. P. et al. (2005).Global prevalence of dementia: a Delphi consensus study. Lancet, 366, 2112–2117.

video service (client can actually see the care person, thus creating a sense of confidence and security), a **location tracking service** (provided the previous consent of the client, the person can be tracked on an electronic map during all his/her moves), a **mobile community service** (allowing care persons organise care and to be mobile themselves while giving instructions to persons who have lost orientation), and finally, a supporting service called **training/preparation @home** (serves as a platform for training and stimulating the other CONFIDENCE services - it should assist the elderly e.g. when planning a trip).

Methods

CONFIDENCE is implemented according to the human-centred design standard for interactive systems (ISO standard 1307). Two development cycles (iterations) of CONFIDENCE are organized around lead users by involving them in all phases of the development process starting with (1) requirements analysis, followed by (2) system design, (3) implementation and (4) field trials. The first iteration already aims at running parts of the system in a field trial and the second iteration aims at the refinement of the implementation including the feedback of the first iteration. The field trials will take place in three different countries (Austria, Switzerland and Romania) from each country three persons with dementia, one professional from the respective home care agency, one volunteer and one family member (14 persons in total) were selected as lead users. Now we are at the first stage of CONFIDENCE were three lead user workshops one in each country took place to define personas, scenarios and the functionality of the different services.

First Results

Due to the fact that CONFIDENCE has just started only first results concerning the lead user workshops can be presented now.

According to the lead user workshops in Austria, Switzerland and Romania the main functionality for each CONFIDENCE service has been identified. Furthermore for each country a corresponding persona (with country specific habits) has been defined. Based on the identified functionality suitable scenarios have been created.

Consecutively the identified functions of the CONFIDENCE services will be briefly described:

Training/Preparation @Home

This service will consist of a component called "Information and Reminders" where different types of information can be retrieved and reminders can be scheduled. Furthermore a component for "Preparing a trip" will be implemented so that the elderly and/or family members will be able to plan and prepare for a trip.

Mobile community service

According to the lead user workshops this service will focus on two main aspects "Assistance in the coordination of care" (e.g. care planning, integrating the existing network of the elderly in the care process etc.) and "Assistance for people with dementia" (e.g. possibility to enter appointments and reminders for the elderly).

Virtual voice service

This service will focus on two main aspects "Request help at home" and "Request help when having problems on the way".

Virtual video service

This service will be an extension of the virtual voice service. It will support voice interaction at home and on the way with the opportunity to see the local conditions.

Virtual tracking service

The agreement of the care recipient provided the service will consists of following components:

- Support in way finding
- Support in case of deviations from planned routes
- Support in case of deviations from daily/everyday trips
- Generic detection of anomalies

Next steps

Both personas and scenarios will be validated within a second lead user workshop in each country within the next few weeks. After the workshops functionality, personas and scenarios will be finalized. In parallel work package "system requirements" will start. The business partners will begin to analyse the market opportunities and barriers for CONFIDENCE in each participating country.